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EXPLORING AND EXPLOITING A GOLD COUNTRY.

By Albert Williams, Jr.

AFTER every new discovery of mineral which happens to be of sufficient importance to attract attention from the outside world, there follows in train, as a sort of logical sequence, a certain series of occurrences. To any one who has been on the spot at the time of a strike and its following rush and excitement, it is easy to foretell what would happen in a similar contingency. History never repeats itself so surely as in these stories of mining. At Wood River, at Creede, at Cripple Creek, to say nothing of the countless rushes of early California and Nevada times, it was just the same. First comes an account of a big strike, magnified by the rose-colored lenses of the prospector. No matter how honest a man, if he once happens to light on a good find it is sure to grow multifold in his sight.

After the first news of such a strike, a number of enterprising prospectors start out for the locality, hoping to find something equally good. With them go some people of the sutler class who propose establishing shops,—general merchandise stores, they are called. This movement is, of course, reported in the papers, and attracts the attention of a larger crowd of persons, who might be called enterprising, but are mainly shiftless. This is the beginning of the rush proper. The next move is by transportation and supply companies, who do not hesitate to exaggerate the reports from the new districts, and, in the cases of Creede and Cripple Creek, owning also the newspapers, kept on lying long after there was any hope or chance for the tenderfoot incomers. For it does not take long for all the ground that is at all promising to be "located," and often covered with thousands on thousands of claims, many of them overlapping and conflicting, out of the whole number only a very small proportion ever amounting to anything. It is only natural to expect that the early comers should select the best ground; in some cases the original discoverers have taken everything worth having. This would apply, however, to a district of limited size, as, for example, the Bonanza and El Dorado Creek portions of the Klondike region, rather than the wider and more varied area of possibly mineral-bearing ground included in the whole newly-discovered placer country.

In these big mining rushes the later comers usually fare very

badly. To obtain some idea of what the proportion of disappointments generally is, it should be remembered that at both Virginia City and Leadville there were more than one hundred thousand persons at one time, while at Creede and Cripple Creek, which happened to be more easily accessible, men came and went in such numbers that there was no way of estimating their total number. The rushes to Boise Basin (Idaho) and the Black Hills (South Dakota) involved great hardship, hardly, if any, less than the present Alaska movement, to which was superadded the danger from hostile Indians; yet the prospectors, the traders, and the camp-followers poured in by thousands. It is worth considering how very few out of all these thousands ever acquired real mining ground, or even employment. In every case on record there have been from ten to a thousand unsuccessful ones to each who succeeded. It was so in the early days of California, where all the conditions were ideally favorable; but in California and other places more favored by nature than Alaska there was room for the disappointed ones to do other things than mine. In the latitude of the Arctic circle, and inland, there is little else to look for than mining and the few industries depending upon it,—transportation, timber-cutting, etc.

Now, as to the Klondike country this same thing is being repeated. Besides the usual small games, and the larger ones of transportation and the sale of outfits and provisions, we find another usual accompaniment—speculation; just as, after the wealth of the Rand became known, London was flooded with promoters and corporations offering shares, so now we see the Klondike opportunities being seized upon. In a reputable paper now before me I find a column and a half of advertisements of Yukon and Klondike and Alaska corporations, in none of which appears the name of a mining man of whom anybody has ever heard. The most reasonable scheme proposed is that of establishing a line of steamboats and going into trading business in anticipation of next year's promised rush. That project will be forestalled by the exertion of the shrewd ship-owners of Seattle, Tacoma, San Francisco, and Victoria, whose light-draft boats are now building, and will be ready when the season opens.

Another beautiful plan advertised is the tempting proposal of some very new women to "man" a schooner yacht, sail around the Horn, and arrive in Alaska some time in futurity.

But among all these advertisements I find none so open to criticism as the proposition "to acquire and operate mining claims;" and this is what nearly all of them point to.

Those who would never think of going into the collar-button and necktie business, and are willing to confess their ignorance of the

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technical details of that trade, are still willing to stake their money in mines. They seem to regard the business as a sort of lottery, in which the chambermaid has an equal chance with the financier.

It always seems foolish to attempt predictions about new mining fields which one has not even visited. Yet in this case there are some things which can be safely said. There are several mining experts in the Klondike country who will have to winter there, and will have from now until next June to look at the ground. They will find, for one thing, that there is no particular Klondike; that the discoveries are in many separate camps; and that the whole territory about which we get these almost fabulous reports is a very big one.

So there is no one special point to look for. In fact, any explorer would be bothered by the multiplicity of richness, in the same sense that a prospector in Montana, Idaho, or Colorado is perplexed by finding colors in any pan from any creek. Finding traces of fine gold proves nothing in a country where there are innumerable quartz veins of no value, but which contribute their float to mislead the prospector.

So far, what gold has been taken out in the upper Yukon country has come from shallow placers, running from ten to twenty feet deep, with the best pay, as usual, on the bed rock. In the short season there has been some hydraulicing, but most of the "get" has been by more primitive means.

From all one can learn, it will not take long to work out the rich, shallow placer-ground in any one locality. Afterward there will be a period of quartz-mining. Whether the upper Yukon country is destined to rival Nevada county, California, or Gilpin county, Colorado, or the Transvaal Rand, is something no one knows. Supposing it to be equal, as regards the mineral conditions, nevertheless the climate and the distance from supplying points are adverse. So far as the actual mining goes, when it comes to underground work climate does not count. Where it tells is in the matter of transportation.

If the mining men now in the Yukon country are wise, they will cease looking for phenomenally rich streaks in small placers, and will search for the original quartz veins from which these placers have been made. The gold of the Klondike and Stewart river countries is coarse, indicating a short journey from its original source. It was to have been expected that some important discoveries of lodes would be made before now, but it seems that all attention has been paid to the placers. As to these finds in river beds, they have very likely been equalled by those in Boise Basin, in California Gulch, and in many other places, the difference mainly being in the coarseness of the Yukon gold. This coarseness seems to have put a queer idea into

the illustrators of *Puck*, which for two weeks printed pictures of supposed gold pans with gratings in their bottoms, the scheme evidently being, to the artist's mind, to screen out the small gravel and mud, retaining only the big nuggets.

But we must not look disdainfully on the gold pan. It, or some similar appliance for testing by washing, is the only available means for estimating the value of gravel, which of course it would be absurd to assay. Although its work looks so rough, in reality, in experienced hands, it gives wonderfully accurate results, so that it is not only used with gravel, but is by many considered far better than the fire-assay for gold-bearing quartz, when the ore is pounded up, screened and washed in it. Formerly it was used wholly for getting gold; now it is used for testing and for cleaning up small lots of particularly rich stuff. It is the implement with which the future exploration of the Alaska gold fields will be effected.

Theoretically everyone knows by this time the art of exploring and exploiting a gold country. It has been so well acquired that a handful of men can overrun a wide territory in a few days, and locate all the placer-ground worth taking up. The idea, for quartz, is simply to follow up the gulches and cañons wherever the pan shows the color; to stop when the indications cease or lessen; and then to skirmish in the side or end hills for a lode. All of which looks easy on paper. In practice, however, if one is prospecting in a "mineral" region, colors are found everywhere. Then it is necessary to use the pan, not as a mere means of finding gold, but as a means of estimating how much,—that is, it becomes an assay, though closer than any assay.

After experimenting with the horn spoon, saucers, Riotte spoon, the batea, pointed tumblers, and all sorts of appliances, it is my opinion that there is nothing to compare with the old, original, California 20-inch gold pan, stamped out of one piece of sheet iron, with an angle of, say, 30° and no crease in the bend. With this tool, and a five-minute instruction, but with considerable experience, one can rapidly reach a rough estimate of the value per ton in gravel or pounded rock. That is something which the fire-assay cannot do for the prospector.

It is a great convenience to have two gold pans or else one pan and a bucket, so as to save time. In this way the rough work can be done rapidly, the small stuff containing the gold being thrown together into the other receptacle, the prospector keeping in his mind a tally of the number of pans. A heaped pan-load weighs about twenty pounds, so that one pan represents the hundredth part of a short ton. It is easy to acquire the habit of picking up uniform pan-loads. With gravel, the amount of the pan-load depends somewhat on the

size of the stuff, all moderate-sized pebbles being washed and allowance being made for boulders, which requires judgment. In testing pounded quartz, the most convenient weight is ten pounds, or the two-hundredth of a ton. A larger weight of gravel can be used,—fifteen to twenty pounds. The knack of gaging the quantity is easily acquired, all that is necessary being to determine on some convenient aliquot part of the ton or cubic yard, the latter ranging between one and one-half and one and three-quarter tons, so that a pan will stand for the 100th, 150th, 200th, or other fraction, with allowance for boulders. When using two pans, after taking enough samples, all the small lots of concentrates in the second pan are together washed carefully over the first pan, the overflow tailings rewashed, and the aggregate result carefully cleaned by drying, removing black sand by a magnet and winnowing off the rest of the waste. When the amount of gold collected is considerable, it is weighed in the most delicate balance available. Estimating "colors" is a different matter, as a small fraction of a cent makes a showing to mislead the novice. With a little practice and advice from an old hand, this art also is mastered.

It is by means of this sort that the Yukon country will be prospected and developed. At present it is going through the stages that early California went through. The rocker, the tom, and the short sluice are there. Hydraulicing and booming have, so far, been conducted only on a small scale, and, as the open season is so short and the gravel so shallow, this kind of mining cannot last long. The future is in the quartz.

Perhaps the best way to "size up" a "rush" is to remember what has happened in others. About once in three years an excitement of this kind occurs in the mining community. That it extends now to the outside public is due to greater newspaper advertising.

It has always happened that, after a great mining excitement and its accompaning speculative fever, there has been a sharp reaction, often a crash and a temporary set-back, with a slow recovery. Afterwards a district that has been over-boomed, and then underrated, settles down to its normal level in the opinion of investors, and work goes on less feverishly and more successfully. Some of the mining corporations which will be engaged in really exploiting the new Yukon mines will doubtless pass through the same experience. As for the catchpenny schemes, the sooner they are exploded the better for Alaska. But there is little doubt of there being real and substantial merit somewhere in all that vast new area, or areas, so that it is passible that there may be worthy rivals of the great Treadwell, so far Alaska's single heavy gold producer.

If there are such mines in the far north, it will require extraordinary effort to get in machinery and supplies, and to put them in shape for active production. Little, comparatively speaking, is needed to outfit a small placer,—sometimes only the crudest appliances, such as some lumber whip-sawed or turned out by a small saw mill on the spot, supplemented by a nozzle or two and a few hundred feet of canvas pipe. But to equip a big hydraulic mine, supposing there to be warrant in the ground for putting in an extensive plant, involves heavy expense for transporting the miles of large steel or iron piping and other metal fixtures required.

Supposing that the prospecting for the quartz lodes, from which the placers already discovered were derived, should reveal something in the nature of a big mine, or mines, it is not a necessary sequence from the richness of the gravel that the veins should be small and high-grade ones, for which moderate plants would suffice, involving even in this case freight charges amounting to several times the cost of the machinery at the foundry. The famous gold quartz mines of the world have been, and are, of moderate down to very low-grade ore. In fact, the most productive have been of extremely low-grade, but having large deposits. So, judging from analogy, if really great quartz mines are to be found and properly developed in the new regions, we shall see some achievements in rapid equipment and overcoming of disadvantages which will almost put the celebrated work on the Homestake (Black Hills) mine to the blush. In the last mentioned case a railroad—engine, rails, and all—was hauled in by wagon teams hundreds of miles from the nearest railroad. A modern plant for a big gold mine is something to look at with respect, with its heavy hoisting, haulage and pumping equipment, its huge mills containing hundreds of stamps, and its constant heavy renewals and supplies. Low-grade mines have to be worked on a very large scale to render a profit. So, if there are to be new Homestakes or Treadwells up the Yukon, there will be some nice engineering that is not mining.

It is a great pity that, no matter how successful the new districts turn out to be, provided they are successful at all, the public will have lost interest, and the newspapers will not devote space to describing the most interesting part of the work. Next season it will be an old story. But, if the work this fall, winter and spring reveals a small fraction of what the shouters promise, there will be some hustling in Alaska, though the general public will hear little of it.